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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/720,789

11/24/2003

Brian A. Urbach

1-24770

5422

46582

7590

10/19/2005

MACMILLAN, SOBANSKI & TODD, LLC  
ONE MARITIME PLAZA - FOURTH FLOOR  
720 WATER STREET  
TOLEDO, OH 43604

EXAMINER

RODRIGUEZ, RUTH C

ART UNIT

PAPER NUMBER

3677

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/720,789

Applicant(s)

URBACH, BRIAN A.

Examiner

Ruth C. Rodriguez

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-11,13-15 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11,13-15 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/5/05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 5, 7, 9-15, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt (US 6,439,794 B2) in view of Littman (US 6,010,272).

Schmidt discloses a ball joint (10) comprises a socket (12), a bearing assembly (30,62), a ball stud (36) and a resilient bushing (68,374). The socket has at least one opening and an inner chamber (Figs. 1, 2, 5 and 7). The bearing assembly is disposed in the chamber of the socket (Figs. 1, 2, 5 and 7). The bearing assembly includes first and second spaced apart bearing members (30,64). The ball stud has a ball portion (40) and a stud portion (50,58). The first and second spaced apart bearing members of the bearing assembly support the ball portion (Figs. 1, 2, 5 and 7). The resilient bushing has a longitudinal bore formed therethrough and is disposed in the inner chamber of the socket (Figs. 1, 2, 5 and 7). Schmidt fails to disclose that ball portion has a bore formed therethrough, the stud portion is slidably disposed within the bore of the ball portion for axial movement relative thereto and the stud portion of the ball stud is slidably disposed in the longitudinal bore of the resilient bushing for axial movement relative thereto.

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However, Littman disclose a ball joint comprising a socket (60), a bearing assembly (131), a ball stud (80,110) and a resilient member (150). The socket has at least one opening and an inner chamber (72). The bearing assembly is disposed in the chamber of the socket (Figs. 1-4). The ball stud has a ball portion (110) and a stud portion (80). The ball portion has a bore (111) formed therethrough. The stud portion is slidably disposed within the bore of the ball portion for axial movement relative thereto (Fig. 1-4). The bearing assembly supports the ball portion (Figs. 1-4). The resilient member forms a longitudinal bore therethrough and is disposed in the inner chamber of the socket (Figs. 1-4). The stud portion of the ball stud is slidably disposed in the longitudinal bore of the resilient bushing for axial movement relative thereto (Figs. 1-4). The ball joint allows movement of a second suspension member relative to the stud and a first suspension member (C. 1, L. 23-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to provide the ball portion with a bore formed therethrough, the stud portion being slidably disposed within the bore of the ball portion for axial movement relative thereto and the stud portion of the ball stud being slidably disposed in the longitudinal bore of the resilient member for axial movement relative thereto as taught by Littman in the ball joint disclosed by Schmidt. Doing so, allows movement of a second suspension member relative to the stud and a first suspension member.

Schmidt also discloses that:

- The resilient bushing is non-movably disposed in the inner chamber (Figs.

1 and 2).

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- A sleeve (70) is disposed in the bore of the bushing (Figs. 2, 5 and 7).
  - The sleeve is fixedly attached to the resilient bushing (Figs. 2, 5 and 7).
  - The stud is slidably disposed in the sleeve (Figs. 2, 5 and 7).
  - The ball portion of the ball stud has a first axis and second axis transverse to the first axis (Figs. 1, 2, 5 and 7). An intersection of the first axis and the second axis defines a center of oscillation of the ball portion (Figs. 1, 2, 5 and 7). The ball portion is normally centered on the center of oscillation (Figs. 1, 2, 5 and 7).
- The resilient bushing is formed of a material having a predetermined hardness to thereby apply a restoring force to maintain or retain the ball portion to the normally centered position (C. 5, L. 40-67 and C. 6, L. 1-29).
- The ball joint further includes a seal (420) for sealing the at least one opening of the socket (C. 9, L. 11-15).
  - The bearing assembly includes first (30) and second (62) spaced apart bearings member for supporting the ball portion of the ball stud (Figs. 1, 2, 5 and 7).
  - The resilient bushing is formed from one of rubber or neoprene (C. 2, L. 32-36).

Schmidt discloses a ball joint (10) comprises a socket (12), a bearing assembly (30,62), a ball stud (36) and a resilient bushing (68,374). The socket has at least one opening and an inner chamber (Figs. 1, 2, 5 and 7). The bearing assembly is disposed in the inner chamber of the socket (Figs. 1, 2, 5 and 7). The bearing assembly includes first and second spaced apart bearing members (30,64). The ball stud has a ball portion (40) and a stud portion (50,58). The first and second spaced apart bearing

members of the bearing assembly support the ball portion (Figs. 1, 2, 5 and 7). The resilient bushing has a longitudinal bore formed therethrough and is disposed in the chamber of the socket (Figs. 1, 2, 5 and 7). The stud is slidably disposed in the sleeve (Figs. 2, 5 and 7). The ball portion of the ball stud has a first axis and second axis transverse to the first axis (Figs. 1, 2, 5 and 7). An intersection of the first axis and the second axis defines a center of oscillation of the ball portion (Figs. 1, 2, 5 and 7). The ball portion is normally centered on the center of oscillation (Figs. 1, 2, 5 and 7). The resilient bushing is formed of a material having a predetermined hardness to thereby apply a restoring force to maintain or return the ball portion to the normally centered position (C. 5, L. 40-67 and C. 6, L. 1-29). Schmidt fails to disclose that ball portion has a bore formed therethrough, the stud portion is slidably disposed within the bore of the ball portion for axial movement relative thereto and the stud portion of the ball stud is slidably disposed in the longitudinal bore of the resilient bushing for axial movement relative thereto. However, Littman disclose a ball joint comprising a socket (60), a bearing assembly (131), a ball stud (80,110) and a resilient member (150). The socket has at least one opening and an inner chamber (72). The bearing assembly is disposed in the chamber of the socket (Figs. 1-4). The ball stud has a ball portion (110) and a stud portion (80). The ball portion has a bore (111) formed therethrough. The stud portion is slidably disposed within the bore of the ball portion for axial movement relative thereto (Fig. 1-4). The bearing assembly supports the ball portion (Figs. 1-4). The resilient member forms a longitudinal bore therethrough and is disposed in the inner chamber of the socket (Figs. 1-4). The stud portion of the ball stud is slidably disposed

in the longitudinal bore of the resilient bushing for axial movement relative thereto (Figs. 1-4). The ball joint allows movement of a second suspension member relative to the stud and a first suspension member (C. 1, L. 23-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to provide the ball portion with a bore formed therethrough, the stud portion being slidably disposed within the bore of the ball portion for axial movement relative thereto and the stud portion of the ball stud being slidably disposed in the longitudinal bore of the resilient member for axial movement relative thereto as taught by Littman in the ball joint disclosed by Schmidt. Doing so, allows movement of a second suspension member relative to the stud and a first suspension member.

The resilient bushing disclosed by Schmidt is non-movably disposed in the inner chamber (Figs. 1, 2, 5 and 7).

Schmidt discloses a tie rod end is used in a vehicle having a steering wheel for controlling steerable wheels (C. 1, L. 16-42). The tie rod end comprises a socket (12), a stem, a bearing assembly (30,62), a ball stud (36) and a resilient bushing (68,374). The socket has at least one opening and an inner chamber (Figs. 1, 2, 5 and 7). The stem extends outwardly from the socket (Figs. 1, 2, 5 and 7). The bearing assembly is disposed in the inner chamber of the socket (Figs. 1, 2, 5 and 7). The bearing assembly includes first and second spaced apart bearing members (30,64). The ball stud has a central ball portion (40) and a stud portion (50,58). The first and second spaced apart bearing member of the bearing assembly support the ball portion (Figs. 1, 2, 5 and 7). The ball portion of the ball stud has a first axis and second axis transverse to the first

axis (Figs. 1, 2, 5 and 7). An intersection of the first axis and the second axis defines a center of oscillation of the ball portion (Figs. 1, 2, 5 and 7). The ball portion is normally centered on the center of oscillation (Figs. 1, 2, 5 and 7). The resilient bushing has a longitudinal bore formed therethrough and is disposed in the inner chamber of the socket (Figs. 1, 2, 5 and 7). The resilient bushing is formed of a material having a predetermined hardness to thereby apply a restoring force to maintain or retain the ball portion to the normally centered position (C. 5, L. 40-67 and C. 6, L. 1-29). The ball stud is caused to rotate about the first axis when a torsional force is applied to the ball stud by turning of a vehicle steering wheel (C. 1, L. 16-42, C. 5, L. 40-67 and C. 6, L. 1-29). Schmidt fails to disclose that ball portion has a bore formed therethrough, the stud portion is slidably disposed within the bore of the ball portion for axial movement relative thereto and the stud portion of the ball stud is slidably disposed in the longitudinal bore of the resilient bushing for axial movement relative thereto. However, Littman disclose a ball joint comprising a socket (60), a bearing assembly (131), a ball stud (80,110) and a resilient member (150). The socket has at least one opening and an inner chamber (72). The bearing assembly is disposed in the chamber of the socket (Figs. 1-4). The ball stud has a ball portion (110) and a stud portion (80). The ball portion has a bore (111) formed therethrough. The stud portion is slidably disposed within the bore of the ball portion for axial movement relative thereto (Fig. 1-4). The bearing assembly supports the ball portion (Figs. 1-4). The resilient member forms a longitudinal bore therethrough and is disposed in the inner chamber of the socket (Figs. 1-4). The stud portion of the ball stud is slidably disposed in the longitudinal bore of the resilient



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bushing for axial movement relative thereto (Figs. 1-4). The ball joint allows movement of a second suspension member relative to the stud and a first suspension member (C. 1, L. 23-35). Therefore, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to provide the ball portion with a bore formed therethrough, the stud portion being slidably disposed within the bore of the ball portion for axial movement relative thereto and the stud portion of the ball stud being slidably disposed in the longitudinal bore of the resilient member for axial movement relative thereto as taught by Littman in the ball joint disclosed by Schmidt. Doing so, allows movement of a second suspension member relative to the stud and a first suspension member.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt.

Schmidt discloses a ball joint having all the limitations listed above in paragraph 2 for the rejection of claim 1. Schmidt discloses a sleeve disposed between the bushing and the stud portion (Figs. 2, 5 and 7). Schmidt fails to disclose that the sleeve is fixedly attached to the bushing with an adhesive. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an adhesive to fixedly attach the bushing to the sleeve since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. In this case, the use of adhesive to fixedly attach two components is well known in the art.

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4. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmidt in view of Westercamp (US 3,396,554).

The ball joint disclose by Schmidt has all the limitations listed above in paragraph 2 for the rejection of claim 1. Schmidt fails to disclose that the stud portion has at least one key and that the sleeve has at least one key way. However, the use of one key and one key way is well known in the ball joint art for the construction of its part as taught by Westercamp. Westercamp teaches a ball stud construction where the ball stud comprises a stud portion (10) including at least one key (12) provided on an outer surface thereof and a ball portion (22) including at least one keyway (20) provided on an inner surface thereof (Figs. 1-3). The key of the stud portion is slidably disposed in the keyway of the sleeve (Figs. 1-3). Such a construction keeps the stud portion secured to the ball portion without allowing rotation between the two parts (C. 2, L. 3-14). Therefore, it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to have the stud portion including at least one key provided on an outer surface thereof and the sleeve including at least one keyway provided on an inner surface thereof such that the key of the stud portion is slidably disposed in the keyway of the sleeve in accordance with the teaching of Westercamp for the ball stud of Schmidt. Doing so, keeps the stud portion secure to the ball portion without allowing rotation between the two parts.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1, 2, 4-15 and 17-20 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's arguments filed 05 August 2005 have been fully considered but they are not persuasive. The Applicant argues that the resilient bushing allow axial load on the stud to be transferred to the housing and that no restoring force is being provided by the bushing. The Examiner fails to agree with the Applicant's argument. The Examiner acknowledges that the resilient bushing disclosed by Schmidt is provided to allow axial load on the stud to be transferred to the housing. However, one having ordinary skill in the art at the time of Applicant's invention will acknowledge that the resilient bushing can also provide a restoring force to the stud due to the confinement of the resilient bushing inside of the inner chamber and due to the central location of the longitudinal bore of the resilient bushing. The resiliency of the material of the bushing will normally force the stud towards the center of the longitudinal bore.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Herbenar (US 2,846,251, US 3,041,094, US 3,790,195 and US 3,945,737), Melton et al. (US 3,408,124), Jorn et al. (US 4,007,924), Krieg et al. (US 5,028,163), Eifert et al. (US 5,509,749), Henkel et al. (US 5,529,420), Kincaid et al. (US 5,597,258) and Schmidt (US 6,439,794 B2) are cited to show state of the art with respect to ball joints having bushing to biased them to a normally centered position. Gair (US 4,154,544) is cited to show state of the art with respect to a ball stud for a ball joint where the ball stud has a ball portion having a bore formed therethrough and a stud portion is disposed within the bore. Westercamp (US 3,396,554) is cited to show state of the art with respect to a stud portion further includes at least one key provided on an outer surface thereof and a sleeve includes at least one keyway provided on an inner surface thereof. The key of the stud portion is slidably disposed in the keyway of the sleeve.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth C Rodriguez whose telephone number is (571) 272-7070. The examiner can normally be reached on M-F 07:15 - 15:45.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on (571) 272-7075.

Submissions of your responses by facsimile transmission are encouraged. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-6640.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ruth C. Rodriguez  
Patent Examiner  
Art Unit 3677

RAI  
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October 17, 2005

  
**JJ Swann**  
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